

Amendments to the Claims:

This Listing of Claims will replace all prior versions and listings of claims in the Application.

Please amend claims 6, 7, 23, and 52 and add new claims 60-74. Please cancel claims 1-5, 8-22, 29-51, and 53-59 without acquiescence or prejudice.

Listing of Claims:

1. – 5. (Cancelled)

6. (Currently Amended) ~~The~~An isolated polypeptide of claim 1, wherein the polypeptide has an comprising the amino acid sequence as set forth in SEQ ID NO:2~~SEQ ID NO:10.~~

7. (Currently Amended) ~~The~~An isolated polypeptide of claim 1, wherein the polypeptide has an comprising the amino acid sequence as set forth in SEQ ID NO:4~~SEQ ID NO:11.~~

8. – 22. (Cancelled)

23. (Currently Amended) A method of ~~ameliorating disease caused by eliciting an immune response against a~~ Tir-producing organism, comprising: ~~inducing an immune response in~~ administering to a host ~~with the polypeptide of claim 1~~ an immunogen according to claim 62, thereby eliciting an immune response against ~~ameliorating disease caused by infection of the host~~ by the Tir-producing organism.

24. (Withdrawn) The method of claim 23, wherein the host is human.

25. (Withdrawn) The method of claim 23, wherein the host is bovine.

26. (Withdrawn) The method of claim 23, wherein the Tir-producing organism is *E. coli*.

27. (Withdrawn) The method of claim 23, wherein the Tir-producing *E. coli* is an enteropathogenic *E. coli*.

28. (Withdrawn) The method of claim 23, wherein the Tir-producing *E. coli* is an enterohemorrhagic *E. coli*.

29. – 51. (Cancelled)

52. (Currently Amended) A pharmaceutical composition comprising a polypeptide of claim 1 that comprises at least one of the amino acid sequences set forth in SEQ ID NO:10 and SEQ ID NO:11 in a pharmaceutically acceptable carrier.

53. – 59. (Cancelled)

60. (New) The polypeptide of claim 6 wherein the polypeptide is phosphorylated.

61. (New) The polypeptide of claim 6 wherein at least one tyrosine residue of the polypeptide is phosphorylated.

62. (New) A Tir polypeptide fragment comprising the amino acid sequence set forth in SEQ ID NO:7.

63. (New) An immunogen comprising a Tir polypeptide fragment that comprises at least 8 consecutive amino acids of SEQ ID NO:10 or SEQ ID NO:11.

64. (New) The immunogen of claim 63 wherein the Tir polypeptide fragment comprises the amino acid sequence set forth in SEQ ID NO:7.

65. (New) A fusion protein comprising a Tir polypeptide that comprises the amino acid sequence of SEQ ID NO:10 or SEQ ID NO:11 fused to a non-Tir protein sequence.

66. (New) The fusion protein of claim 64 wherein the fusion protein comprises a cleavage site located between the Tir polypeptide and the non-Tir protein sequence.

67. (New) The fusion protein of claim 65 wherein the non-Tir protein sequence is an immunoglobulin (Ig) Fc domain.

68. (New) The fusion protein of claim 65 wherein the non-Tir protein sequence is a marker polypeptide selected from the group consisting of an enzyme, a fluorescent protein, and a luminescent protein.

69. (New) An isolated Tir polypeptide comprising an amino acid sequence that is selected from the group consisting of (a) an amino acid sequence substantially identical to the sequence set forth in SEQ ID NO:10, wherein the Tir polypeptide has at least one amino acid residue in SEQ ID NO:10 substituted with a conservative amino acid; (b) an amino acid sequence substantially identical to the sequence set forth in SEQ ID NO:10, wherein the Tir polypeptide has at least one amino acid deleted from or inserted into SEQ ID NO:10; (c) an amino acid sequence that is substantially identical to the sequence set forth in SEQ ID NO:11, wherein the Tir polypeptide has at least one amino acid residue in SEQ ID NO:11 substituted with a conservative amino acid; and (d) an amino acid sequence that is substantially identical to the sequence set forth in SEQ ID NO:11, wherein the Tir polypeptide has at least one amino acid deleted from or inserted into SEQ ID NO:11;

and wherein the Tir polypeptide retains at least one Tir-specific activity.

70. (New) The Tir polypeptide of claim 69, wherein the at least one Tir-specific activity is selected from the group consisting of (a) the ability to bind to intimin; (b) the ability to nucleate actin in a host cell; and (c) the ability to activate a host cell signal transduction pathway.

71. (New) The Tir polypeptide of claim 69, wherein the at least one Tir-specific activity is the ability to specifically bind to a Tir-specific antibody.

72. (New) The Tir polypeptide of claim 69, wherein the at least one Tir-specific activity is the ability to induce an immune response in a host to an organism that produces a Tir polypeptide, wherein the organism that produces the Tir polypeptide is either enteropathogenic *E. coli* or enterohemorrhagic *E. coli*.

73. (New) The method of any one of claims 23-26 wherein the immune response is a protective immune response.

74. (New) The method of any one of claims 23-26 wherein the immunogen comprises a polypeptide comprising at least one of the amino acid sequences set forth in SEQ ID NO:10 and SEQ ID NO:11.